

## Miscellany

# What is the explanation for the difference in relative prices between Catalonia and Spain?\*

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Like other wealthy and prosperous European regions, Catalonia has a pattern of systematic price rise. Inflation in Catalonia is thus above the Spanish average, but as we will find out here, price differences are due to not only modifications in relative productivity but also other variables.

Catalonia is not the Spanish region with the highest inflation rate, though it has been consistently above the Spanish average. Between 1977 and 1998, Barcelona and Girona had an inflation between 30 and 40% above the Spanish average.<sup>1</sup> The price difference between Catalonia and overall Spain has been above four percentage points in the 1994-2005 period.

\* This article is a summary of a survey ordered by the Technical Cabinet of the Department of Innovation, Universities and Enterprise.

Price difference within one country usually shows a systematic consistency, though it is true that it is all in all lower than differences existing between countries. But considering largely distinct economic territories such as Catalonia or the Basque Country as to Spain, it can be observed that prices are consistently higher. Hence it can be concluded that there are structural elements to be taken into account in price evolution. Besides, the factors explaining this gap between regions or territories within the same country differ from those between different countries.<sup>2</sup>

Here we intend to examine the main reasons that can be found to explain higher relative prices in Catalonia as compared to Spain, which are basically three: Catalonia's higher productivity, a bigger opening and exposure to competition and a lower incidence of the public sector as a stabilising factor.

## Explanation of price difference

Economic theory on price difference between territories is focused on the so-called *single-price* law. Hence, if two territories share the same properties and there are no barriers to mobility, it should be expected that prices are the same in both.

The main mechanism ensuring that this is the final outcome is arbitration, since price difference will stimulate commercial action that aims at buying where prices are lower and selling where they are higher till prices equal.

However, the truth is that the conditions for equal properties as would be desirable for prices to be the same in different areas within a country are not given. The main distinctive features are determined by a set of factors we will go through briefly.

### ► Difference in productivity

Basic neoclassic literature demonstrates that from an offer perspective, price differences between two distinct economic areas related to one same good (provided information is perfect and the different conditions of competitive balance are fulfilled) shall equal the difference in productivity. So if there were no trade barriers and perfect competition conditions were given, the price difference between Catalonia and Spain should be due to a difference in productivity as shown in chart 1. This difference partly explains that the productivity gap has been above 10% since 2000, as it is the period when the highest price difference between Catalonia and Spain occurred. This difference is partly due to a lack of transparency in markets as it is since 2000, when the European Currency Union came into force, that the price and

productivity evolution was more in line with the predictions of neoclassic economic theory, as chart 2 shows, based on which price differences are due to a difference in productivity.

### ► The Balassa law and the role of the public sector

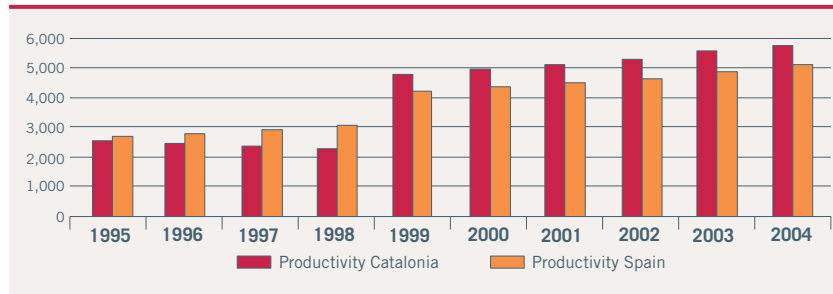
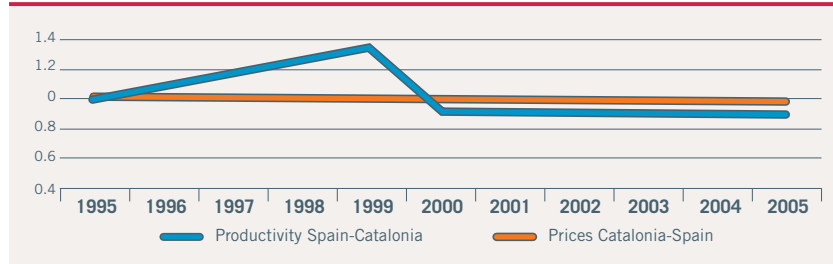
Balassa (1964) and Samuelson (1964) proved that one of the main reasons for which changes in productivity do not automatically become changes in the price level stems from the proportion of non-tradable goods in the economy. This notwithstanding, recent literature challenges the role of non-tradable goods,<sup>3</sup> though this is still a matter open for discussion. Hence total prices can be accounted as an aggregation of tradable (Pt) and non-

**Table 1. Price index in Catalonia and Spain, 1995-2005**

(basis 1994 = 100)

Year	Catalonia	Spain
1995	104.6	104.9
1996	108.7	108.7
1997	111.0	111.0
1998	113.4	113.0
1999	116.6	115.7
2000	121.0	119.6
2001	125.2	124.0
2002	129.9	128.3
2003	134.4	132.1
2004	139.1	135.9
2005	144.6	140.3

Source: INE, 2006

**Chart 1. Productivity in Catalonia related to Spain****Chart 2. Evolution of relative prices and relative productivity in Spain and Catalonia**

tradable good prices ( $P_n$ ), as is shown in the following:

$$P = \alpha P_t + (1 - \alpha) P_n$$

There is a certain discussion in empirical literature on how to measure changes in non-tradable goods. One of the key variables is public intervention, particularly how the relevance of the public sector has an impact by moderating prices. This moderation is due to different reasons, particularly the way public activity is remunerated, which far from productivity-based payment is hardly ever adjusted beyond inflation as it is not exposed to market mechanisms. So it is to be expected that a bigger relevance of the public sector will contribute to maintaining price stability, thus protecting a territory from market mechanisms that could lead to pay for productivity-based work.

Public expenditure in Catalonia has traditionally been very low as compared to the other regions; it amounts to hardly more than 8% of its income, which means that the relevance of the public sector is clearly below other areas in Spain, even some regions with a higher income level than Catalonia. The relevance of the public sector can also be measured by the concentration of public administration employees per thousand inhabitants. It is interesting to state that in Catalonia, 0.4% of the population is employed by the central government, 2% by regional administration and 1.3% by local authorities. This makes a total 3.7% of the population working for public

administration. However, if we compare Catalonia to other regions such as Extremadura or Madrid, it turns out that the incidence of the public sector is roughly twice as high there. Catalonia is the Spanish region with less public administration employees per thousand inhabitants, and this is not correlated with unemployment in 2004. The Catalan Lands (Catalonia, Valencia and Balearic Islands) are altogether the area in Spain with the lowest share of central administration in economic activity.

As can be stated on charts 3 and 4, prices fall consistently as the incidence of the public sector based on public employees increases, measured by civil servants as of both the total population and the total employed people.

#### ► Technological change and time.

The effects of modernisation and globalisation translate into an expansion of products bought by means of new technologies. More than 40% of the Spanish population currently uses the internet to buy, which means a significant increase of competition in retail. Although it is not possible to observe with a variable the effect of technological change, what we can do is to examine how the time trend explains price changes.

#### ► Foreign opening.

Price difference between areas can be due to trade and

transport barriers, which reduce the capacity of arbitration and cause information problems for agents in keeping the single-price law. Foreign opening through exports is thus a mechanism by which a region is over-proportionately exposed to international competition.

#### ► Competition in distribution.

To analyse competition in distribution, a very easy way but accurate as to theory (cf. the result of a generalised Cournot model) is to examine if the variation in the number of companies on the distribution market (number of wholesalers) affects the end price of products. Table 2 shows the number of wholesale warehouses per region between 2000 and 2005.

This information allows to assess overall how competition in the branch has evolved. In

Catalonia, as in the Basque Country, what can be observed is a certain stagnation in the number of wholesalers operating in the area despite an increase in Catalonia in 2005.

Chart 5 shows a slight relation between the level of competition in distribution and prices in each region. However, in some regions there is a certain positive relation shown on the left side of the chart.

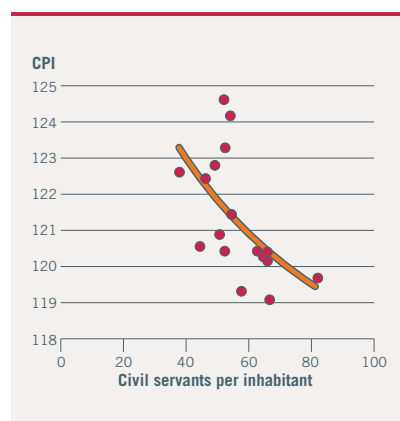
## Main results of econometric estimates

We have stated that among the causes that may explain the different evolution of prices in Catalonia and the whole of Spain there is the effect of competition in commercial distribution, the

incidence of goods and services not for sale and the relevance of the public sector. The incidence of the private sector and the stake of consumers in the cost related to general prices in Catalonia and between branches has a significant effect. It is further observed that a part of the variation is explained by a shift in productivity. All this leads to relevant price differences related to other regions, and the question many raise is what the price level would be if Catalonia's features were within the Spanish average.

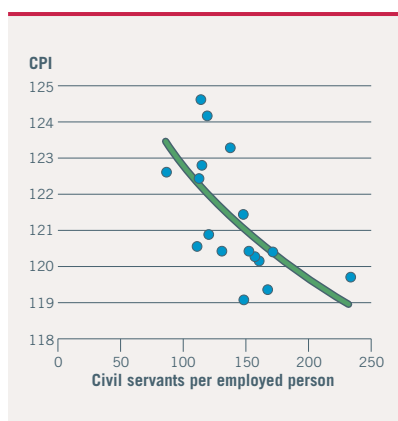
The results of econometric estimates, elaborated using dynamic panel data modelling (the data are not shown due to lack of space), allow to conclude that a 10% increase in the public sector share in economic activity would bring about an 8% reduction of overall prices as a result of the competition protection effect due to the incidence of the public sector. Otherwise, a higher competition in commercial distribution turns out not to be a significant variable. If we add the productivity effect, it is observed that it has a very weak effect and does not seem to be the main variable explaining regional price differences. It is especially interesting to state that the most important variable to explain price differences is still the relevance of the public sector. Finally, if we add the higher tendency some regions have to export (as a measure to open up abroad), those exporting

**Chart 3. Consumer price index and civil servants per inhabitant**



Source: Eurostat

**Chart 4. Consumer price index and civil servants per employed person**



Source: Eurostat

**Table 2. Number of wholesale warehouses per region**

	2005	2004	2003	2002	2001	2000
Andalusia	34,867	33,587	33,610	31,844	31,427	32,618
Aragon	7,374	7,479	7,081	6,599	6,841	6,676
Asturias	5,099	5,004	4,906	5,088	4,785	4,922
Balearic Islands	4,972	5,256	4,641	4,869	4,462	2,373
Canary Islands	9,861	9,642	9,752	9,287	8,975	5,684
Cantabria	2,309	2,413	2,213	2,390	2,129	1,723
Castile and León	11,884	11,820	12,138	11,581	11,184	11,270
Castile-La Mancha	8,898	8,647	8,110	7,538	7,812	6,140
Catalonia	47,049	46,425	44,606	45,347	42,281	46,533
Valencian Region	29,762	28,228	26,349	25,786	25,309	26,114
Extremadura	4,970	4,597	4,896	4,761	4,292	4,670
Galicia	15,363	15,168	14,526	14,031	14,120	11,628
Madrid	32,964	33,663	32,002	28,597	26,632	26,644
Murcia	7,698	7,049	6,994	7,008	6,126	3,970
Navarre	2,584	2,577	2,791	2,340	2,484	2,578
Basque Country	13,010	11,883	12,472	12,629	12,867	13,711
Rioja	1,813	1,928	1,912	1,746	1,668	1,329

Source: INE

more and thus being more exposed to international competition experience relatively higher prices, as it was to be expected, and a 1% increase in the incidence of the public sector would reduce prices by 1.22%. Hence we can conclude that the lowest incidence of the public sector in Catalonia is the only explanatory variable that turns out to be significant in all specifications made.

## Conclusions

The price level in Catalonia follows different patterns from the rest of Spain. There is a

certain stagnation as to the level of competition in distribution, but it does not seem to affect prices, especially not the level of relative prices. It is observed that the price difference between regions is explained by the different relevance of the public sector and degree of foreign opening. The less relevant the public sector and the higher foreign opening, the higher are prices given that they are more exposed to competition, and relative prices on international markets reflect more neatly the difference in productivity rather than prices in Spain.

Different dynamic econometric

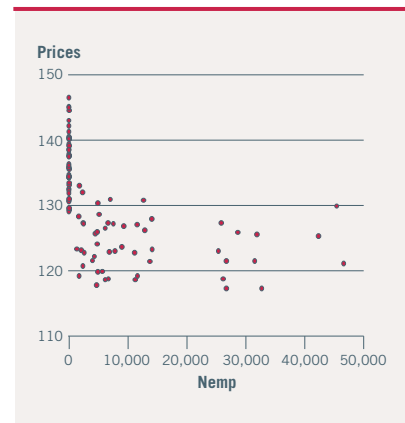
estimates indicate that the low incidence of the public sector explains the price increase, so a 1% increase in relevance of the public sector in Catalonia would reduce prices between 0.4 and 1%. The difference in relative prices between Catalonia and Spain is basically explained by a different incidence of the public sector.

Hence it can be concluded that less investment and relevance of the public sector than in other areas of Spain can be the cause of high prices in the Catalan economy as compared to Spain. All this indicates that Catalans proportionally bear

relative prices typical of a country open to international competition but the missing incidence of the public sector does not allow them to enjoy the stabilising effects of prices typical of public activity and rendering of non-tradable goods and services. Foreign opening of Catalonia exposes it to higher prices, which could be made up for with an increasing relevance of the public sector, but the weakness of the latter makes Catalonia very sensitive to changes in economic activity

in the destination markets of our products (mainly the EU), whereas other regions within the same country as Catalonia are less so as their economic structure is different. Finally, it has to be said that there is no evidence that price differences between Catalonia and Spain are due to a difference in the level of competition in distribution. During the analysed period, this level of competition has not undergone any serious change, so Catalonia seems to follow a similar pattern as Spain.

**Chart 5. Consumer price index and competition in distribution**



Source: Eurostat

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## Notes

1. ALBEROLA, 2001.
2. ALBEROLA, 2001.
3. ENGEL, 1999.

